

PTQ/SB/DBA (02-03)

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/655,854
Filing Date	September 5, 2003
First Named Inventor	Rafael Reif
Art Unit	2826
Examiner Name	Leonardo Andujar
Attorney/Agent Number	MIT-138AUS

Sheet	1	of	1
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## U. S. PATENT DOCUMENTS

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**FOREIGN PATENT DOCUMENTS**

[illegible]

**Examiner  
Signature**

Date	
Considered	

Signature [Signature]

\*EXAMINER: Initial reference considered whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number (optional). See Kinds Codes of classification. For USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP § 901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language translation is attached.

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PTO/SB/08A (02-03)

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**INFORMATION DISCLOSURE  
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Sheet 1 of 2

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Filing Date	September 5, 2003
First Named Inventor	Rafael Reif
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Examiner Name	Leonardo Andujar
Attorney Dock:it Number	MIT-136AUS

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.†	Document Number Number-Kind Code‡ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
b2		US- 5,236,118	08/17/1993	Bower et al.	
		US- 5,270,261	12/14/1993	Bertin et al.	
		US- 5,370,301	12/06/1994	Belcher et al.	
		US- 5,391,267	02/21/1995	Sullivan et al.	
		US- 5,563,084	10/08/1996	Ramm et al.	
		US- 5,669,545	09/23/1997	Pham et al.	
		US- 5,985,693	11/16/1999	Leedy	
		US- 6,027,958	02/22/2000	Vu et al.	
		US- 2002/0135075	09/26/2002	Leedy	
		US- 6,485,892	10/15/2002	Suga	
		US- 2004/0124538	07/01/2004	Reif et al.	
		US- 2004/0219765	11/04/2004	Reif et al.	
		US- 2004/0126994	07/01/2004	Reif et al.	
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FOREIGN PATENT DOCUMENTS					
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b2		EP 1 041 624 A1	10/04/2000	Interuniversity Microelectronics Centers (IMEC)	
		DE 100 47 963 A 1	03/29/2001	Sony Corp.	
		EP 1 432 032 A2	06/23/2004	Inf. Systems (Inf. Systems) Co. LTD.	

Examiner Signature	Date Considered
<i>[Signature]</i>	07/26/05

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Art Unit	2826
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LA		US- 5,238,118	08/17/1993	Bower et al.	
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		US- 5,370,301	12/06/1994	Belcher et al.	
		US- 5,391,267	02/21/1995	Sullivan et al.	
		US- 5,563,084	10/08/1996	Ramm et al.	
		US- 5,669,545	09/23/1997	Pham et al.	
		US- 5,985,693	11/16/1999	Leedy	
		US- 6,027,958	02/22/2000	Vu et al.	
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		US- 6,485,892	10/15/2002	Suga	
		US- 2004/0124538	07/01/2004	Reif et al.	
		US- 2004/0219765	11/04/2004	Reif et al.	
		US- 2004/0126994	07/01/2004	Reif et al.	
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LA		EP 1 041 624 A1	10/04/2000	Interuniversity Microelectronics Centers (IMEC)		
LA		DE 100 47 963 A 1	03/29/2001	Sony Corp.		
LA		EP 1 432 032 A2	06/23/2004	Infineon Technologies AG		

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<i>[Signature]</i>	<i>[Signature]</i>

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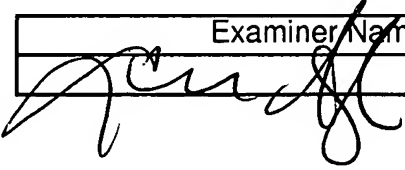

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# ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	MULTI-LAYER INTEGRATED SEMICONDUCTOR STRUCTURE						
Application Number :		10/655854					
Confirmation Number:		7254					
First Named Applicant:		Rafael Reif					
Attorney Docket Number:		MIT-136AUS					
Art Unit:		2811					
Examiner:							
Search string:		( 5523628 or 6717244 ).pn					
<b>US Patent Documents</b>							
Note: Applicant is not required to submit a paper copy of cited US Patent Documents							
init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
6a	1	5523628	1996-06-04	Williams et al.			
wa	2	6717244	2004-04-06	Hikita et al.			
<b>Signature</b>							
Examiner Name				Date			
							

PTO/SB/06A (02-03)

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# **SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

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## **Complete if Known**

Sheet	1	of	2
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Application Number	10/655,854
Filing Date	September 5, 2003
First Named Inventor	Rafael Reif
Art Unit	2811
Examiner Name	Not Yet Assigned
Attorney Docket Number	MIT-136AUS

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
601		US- 5,706,578	01/13/1998	Hubner	
602		US- 2002/0109236	08/15/2002	Kim et al.	
603		US- 2002/0135062	09/26/2002	Mastromatteo et al.	
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FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>2</sup> Number <sup>3</sup> Kind Code <sup>4</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear
W		EP 1 151 962 A1	07/11/2001	STMicroelectronics S.r.l.	

Examiner Signature	Date Considered
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Sheet 1 of 2

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First Named Inventor	Rafael Reif
Art Unit	2811
Examiner Name	Not Yet Assigned
Attorney Docket Number	MIT-136AUS

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		Number-Kind Code <sup>2</sup> (if known)			
LA		US- 5,706,578	01/13/1998	Hubner	
		US- 5,767,009	06/16/1998	Yoshida et al.	
		US- 5,825,080	10/20/1998	Imaoka et al.	
		US- 2002/0050635 A1	05/02/2002	Ogura et al.	
		US- 2002/00774670A1	06/20/2002	Suga	
LA		US-			
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		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				
LA		2 645 681	04/07/1989	Thomson CSF		
		WO 02/09182 A1	01/31/2002	Christian Val		
LA						

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				Examiner Name	Not Yet Assigned
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Sheet	2	of	2		

[illegible]

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		Attorney Docket Number	MIT-136AUS
Sheet	1	of	1

OTHER PRIOR ART—NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
W		OSAMU TABATA, Anisotropic Etching of Silicon in TMAH Solutions, Toyota Central Research and Development Laboratories, Inc., February 21, 1992, Pages 51-57, Japan	
		PHILIP M. SAILER, Creating 3D Circuits Using Transferred Films, Circuits & Devices, November 1997, Pages 27-30	
		TAKUJI MATSUMOTO, New Three-Dimensional Wafer Bonding Technology Using the Adhesive Injection Method, March, 1998, Pages 1217-1221, Jpn. J. Appl. Phys. Vol. 37 (1998)	
		A. FAN, Copper Wafer Bonding, Electrochemical and Solid-State Letters, 1999, Pages 534-536, Cambridge, Massachusetts	
		ARIFUR RAHMAN, Wire-Length Distribution of Three-Dimensional Integrated Circuits, 1999, Pages 233-235	
		VICTOR W.C. CHAN, Three Dimensional CMOS Integrated Circuits on Large Grain Polysilicon Films, EEE, Hong Kong University of Science and Technology, 2000, Pages 00-161 - 00-164 Hong Kong	
		K.W. LEE, Three-Dimensional Shared Memory Fabricated Using Wafer Stacking Technology, Dept. of Machine Intelligence and Systems Engineering, 2000, Pages 00-185 - 00-188, Hong Kong	
W		KUAN-NENG CHEN, Microstructure Examination of Copper Wafer Bonding, Microsystem Technology Laboratories, December 20, 2000, Pages 331-335, Cambridge, Massachusetts	

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		Art Unit	2811
		Examiner Name	Not Yet Assigned
Sheet 1 of 1	Attorney Docket Number	MIT-138AUS	

OTHER PRIOR ART—NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.†	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
LA		CHRIS GAITHER, Intel Set To Unveil Advanced Communications Chip, The Boston Globe, October 15, 2002, Pages 1-3, Boston, Massachusetts	
		PETER CLARKE, IEDM Late Paper: IBM Shows How to Stack for 3D Circuitry, Silicon Strategies.Com, November 28, 2002, Pages 1-2, LONDON	
		TRU-SI TECHNOLOGIES, Through-Silicon Vias, Tru-Si Technologies Home Page, April 7, 2003, Page 1, Sunnyvale, California	
		MARK LAPEDUS, Tazzaron Devises Multi-Wafer Stack for 3-D Chips, Semiconductors Business News, June 30, 2003, Pages 1-3, Naperville, Illinois	

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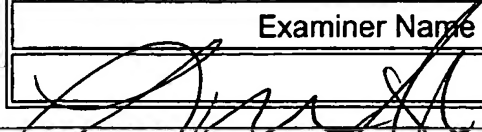
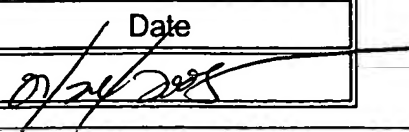
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



## ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention	MULTI-LAYER INTEGRATED SEMICONDUCTOR STRUCTURE						
Application Number: 10/655854							
Confirmation Number: 7254							
First Named Applicant: Rafael Reif							
Attorney Docket Number: MIT-136AUS							
Art Unit: 2811							
Search string: ( 4313126 or 4402761 or 4456888 or 4599704 or 4986861 or 5156997 or 5206186 or 5445994 or 5821138 or 5923087 or 6441478 ).pn.							
US Patent Documents							
Note: Applicant is not required to submit a paper copy of cited US Patent Documents							
init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
WA	1	4313126	1982-01-26	Krumm et al.			
WA	2	4402761	1983-09-06	Feist			
WA	3	4456888	1984-06-26	Ayasli			
WA	4	4599704	1986-07-08	Mazin			
WA	5	4986861	1991-01-22	Nishida et al.			
WA	6	5156997	1992-10-20	Kumar et al.			
WA	7	5206186	1993-04-27	Neugebauer et al.			
WA	8	5445994	1995-08-29	Gilton			
WA	9	5821138	1998-10-13	Yamazaki et al.			
WA	10	5923087	1999-07-13	Suzuki et al.			
WA	11	6441478	2002-08-27	Park			
Signature							
Examiner Name					Date		
							

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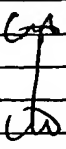
Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Sheet	1	of	2	Application Number	Not Yet Assigned
				Filing Date	Herewith
				First Named Inventor	Rafael Reif
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	MIT-136AUS

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
		US- 4,313,126	01/26/1982	Krumm et al.	
		US- 4,402,761	09/06/1983	Feist	
		US- 4,456,888	06/26/1984	Ayasli	
		US- 4,599,704	07/08/1986	Mazin	
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FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	1 <sup>6</sup>
		Country Code <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)				

Examiner Signature		Date Considered	07/12/2008
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[illegible]

Examiner Signature		Date Considered	
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1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 422 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Mail Stop Patent Application, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.**

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